

## REMARKS/ARGUMENTS

Favorable reconsideration of this Application, in light of the following discussion, is respectfully requested.

This Request for Reconsideration is in response to the Office Action mailed on March 24, 2004. Claims 1-20 are pending and stand rejected in the Application.

Claims 1-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ausherman (U.S. Patent No. 4,136,826, hereinafter "Ausherman") in view of Cvikl (U.K. Patent No. 927,917, hereinafter "Cvikl").

Applicants respectfully submit that Ausherman and Cvikl, individually or in any combination thereof, do not support a *prima facie* case of obviousness of the invention recited in Claims 1, 13, and 17 for at least two reasons. First, this is so because, even when combined, these prior art references do not teach or suggest all the claim limitations recited therein. Secondly, there is no suggestion or motivation to modify the references or to combine the references' teachings.

According to a feature of the invention as set forth in Claims 1, 13, and 17, a method for manufacturing a spray boom is recited, comprising, among other features, forming two flat ladders, each ladder consisting of an upper beam connected to a lower beam by girders, producing lower crossbeams, and assembling the two ladders and the lower crossbeams to form a three-dimensional structure. Claims 13 and 17 further recite the feature of hollow members.

As disclosed in the Specification, the manufacture of conventional triangular lattice structure for spray booms is plagued with several problems, including, but not limited to, difficulty in positioning and connecting several beams together, and the need to make very specialized cuts in each of the girders, including cutting the end of girders to be inclined in

two directions with respect to a plane perpendicular to its longitudinal axis.<sup>1</sup> It is clear that such a complex structure is cumbersome and expensive to manufacture.

The present invention discloses a novel and advantageous method to manufacture spray booms that is less complicated and less expensive than conventional approaches by arranging the girders in a single plane with the support beams and inclining the end of each girder in at most a single direction with respect to a plane perpendicular to its longitudinal axis,<sup>2</sup> making it simpler to cut each of the crossbeams.<sup>3</sup>

Ausherman relates to a stop device for preventing the rotation of spinners used for distributing water from the top of a center pivot irrigation system.<sup>4</sup> This device includes a tube 12 supported by bracings 17, angular shaped towers 16, and wheels 18.<sup>5</sup> The bracings 17 encompass the two longitudinal bracings and small connecting bracings. The outstanding Office Action acknowledges that Ausherman fails to teach a structure having two flat ladders, each ladder comprised of an upper beam connected to a lower beam by girders and lower cross beams. Given that Ausherman's invention was focused at stopping the rotation of spinners during non-use so as to prevent the drive shaft 28 to drive the wheels 18 in an irregular path, causing the irrigation system 14 to become out of line and tangled,<sup>6</sup> Ausherman is silent as to any problems related to a lack of strength of the center pivot irrigation system disclosed.

Cvikl describes a method for manufacturing a three-dimensional lattice girder. This manufacturing method consists of making three flat lattice panels that are constituted, respectively, of two longitudinal bars 2 connected by lattice bars 1.<sup>7</sup> The three lattice panels thus obtained are then assembled by welding in order to manufacture the three-dimensional

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<sup>1</sup> See, for example, specification, page 1, line 13 – page 2, line 24.

<sup>2</sup> *Id.*, page 2, lines 5-21.

<sup>3</sup> *Id.*, page 7, lines 3-9.

<sup>4</sup> See, for example, Ausherman, col. 1, lines 5-9.

<sup>5</sup> *Id.*, col. 2, lines 20-33.

<sup>6</sup> *Id.*, col. 2, lines 48-54.

<sup>7</sup> See, for example, Cvikl, page 2, lines 48-51.

structure. Cvikl clearly discloses that elements 2 are round bars, or “solid pieces or blocks of material that are usually considerably longer than it is wide,”<sup>8</sup> and lattice bars 1 can be either round bars or round tubular elements.<sup>9</sup>

The Examiner cites Cvikl as disclosing a structure having two flat ladders, each ladder comprising an upper beam and connected to a lower beam by girders and lower cross beams. The structure comprises two side by side upper beams and lower cross beams holding the two ladders together to form a convergent three-dimensional structure. The asserted motivation to combine was based on making the spraying boom of Ausherman stronger with the structure disclosed by Cvikl. Applicants respectfully disagree because there is no sufficient evidence of record for the required motivation to modify the Ausherman device by incorporating Cvikl three-dimensional lattice girder for the following reasons.<sup>10</sup>

The outstanding Office Action states that the proposed modification would have been obvious "to make the spraying boom of Ausherman stronger."<sup>11</sup> The record, however, fails to provide the required evidence of a motivation for a person of ordinary skill in the art to perform such modification. While Cvikl may provide a reason for simplifying and reduce the cost of manufacture of lattice structures, it fails to suggest why a person of ordinary skill in the art would be motivated to add such a structure to a device such as the one disclosed by Ausherman, which is concerned with a stop device for preventing the rotation of spinners used for distributing water from the top of a center pivot irrigation system. In particular, Ausherman is silent as to any problems related to strength of its structure. It does not suggest

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<sup>8</sup> “a straight piece (as of wood or metal) that is longer than it is wide and has any of various uses (as for a lever, support, barrier, or fastening); a solid piece or block of material that is usually considerably longer than it is wide” Merriam-Webster Dictionary online, emphasis added.

<sup>9</sup> See, for example, Cvikl, page 2, lines 51-52, and lines 72-75.

<sup>10</sup> See MPEP 2143.01 stating “[o]bviousness can only be established by combining or modifying the teaching of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art,” (citations omitted). See also MPEP 2144.08 III stating that “[e]xplicit findings on motivation or suggestion to select the claimed invention should also be articulated in order to support a 35 U.S.C. 103 ground of rejection. . . . Conclusory statements of similarity or motivation, without any articulated rational or evidentiary support, do not constitute sufficient factual findings.”

<sup>11</sup> See outstanding Office Action at page 3, line 1.

that further improvements related to structural strength are desired, nor that another feature should be added to further improve the stop device disclosed. In particular, Ausherman does not suggest adding a heavy lattice girder structure such as the one disclosed in the Cvikl. Thus Ausherman and Cvikl do not provide the motivation to perform the proposed modification of the Ausherman device as proposed by the office. In other words, an attempt to bring in the isolated teaching of Cvikl's lattice girder structure into the Ausherman device would amount to improperly picking and choosing features from different references without regard to the teachings of the references as a whole.<sup>12</sup> While the required evidence of motivation to combine need not come from the applied references themselves, the evidence must come from *somewhere* within the record. In this case, there is nothing in the record supporting the Office Action's proposed modification of Ausherman.

Furthermore, it is not clear from the record how Cvikl's lattice girders could be incorporated into the Ausherman device. Although the record is devoid of a reasonable explanation as to the resulting proposed combination, Applicants' respectfully submit, irrespective of how the references are combined, one would end up with a device that would be unsatisfactory for its intended use.

It is clear from the teachings of Cvikl that elements 2 are bars and not tubes; therefore, the resulting combination would be a main water distribution system having seven round elements (i.e., the tube 12 of Ausherman needed to carry the water and the six bars 2 of Cvikl) running from the water pump to the end of the rig in addition to a plurality of lattice bars 1, which are part of the structure disclosed by Cvikl. Applicants respectfully submit that such a structure would be either inoperable, because the additional unnecessary weight added by the structure of Cvikl to the structure of Ausherman would make the irrigation system of

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<sup>12</sup> See In re Ehrreich 590 F2d 902, 200 USPQ 504 (CCPA, 1979) (stating that patentability must be addressed "in terms of what would have been obvious to one of ordinary skill in the art at the time the invention was made in view of the sum of all the relevant teachings in the art, not in view of first one and then another of the isolated teachings in the art," and that one "must consider the entirety of the disclosure made by the references, and avoid combining them indiscriminately.")

Ausherman so heavy that its gear box 20 rotated by the drive shaft 28 driven by the spinner arms 24 would not be able to move the water irrigation system. One may be tempted to argue against the specific teachings of Cvikl by stating that the longitudinal bar elements of Cvikl could be replaced by tubes, thus eliminating the need for the tube 12 Ausherman. However, such a reasoning would result in a structure that would be unsatisfactory to its intended use because it would either reduce the area of coverage of the irrigation system or require a large pump for the same performance. This is so because replacing the tube 12 of Ausherman with the two “tubular” elements of Cvikl to carry the water for the irrigation system would increase the pressure drop of the system because of the additional full length of pipe provided by the Cvikl structure. As such, a larger pump would have to be provided to maintain the same area of irrigation or, if the same pump is used, a reduction in the area of irrigation would certainly result.

Even if assuming *in arguendo* that one of skill in art would be motivated to make such a combination, the modifications needed would require a substantial reconstruction or redesign of the elements of the Ausherman device, and/or would change its basic principle of operation as explained. There is no evidence that a person of ordinary skill in the art would be motivated to perform such changes and redesign.<sup>13</sup> Furthermore, it is not clear from the record whether such modification would actually achieve the result purported in the outstanding Office Action.

In addition, Applicants respectfully submit that one of ordinary skill in the art would not be lead to modify the distribution bar of Ausherman based on the teachings of Cvikl because by doing so the water activated stop device of Ausherman would become more complex, more cumbersome, and more expensive to build. The method according to Cvikl

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<sup>13</sup> See In re Ratti, 270 F.2d 810, 813, 123 USPQ 349, 352 (reversing an obviousness rejection where the “suggested combination of references would require a substantial reconstruction and redesign of the elements shown in the reference as well as a change in the basic principle under which the reference construction was designed to operate.”)

requires making three ladders, involving in particular the use of six longitudinal beams.

Therefore, the profit obtained by making the ladders flat is completely negated by the additional cost incurred by using a greater number of longitudinal beams.

Furthermore, the method according to Cvikl is not compatible with the information contained in Ausherman. Indeed, Ausherman discloses an assembly including a tube 12 connected, on the one hand, to a longitudinal beam and, on the other hand, to another longitudinal beam via connecting beams. Conversely, the method according to Cvikl only allows one to connect a first longitudinal beam to a second main beam via small beams.

In rejecting a claim under 35 U.S.C. § 103(a), the USPTO must support its rejection by "substantial evidence" within the record,<sup>14</sup> and by "clear and particular" evidence<sup>15</sup> of a suggestion, teaching, or motivation to combine the teachings of different references. As discussed above, there is no substantial evidence, nor clear and particular evidence, within the record of motivation for modifying the Ausherman device by incorporating Cvikl's three dimensional lattice girder consisting of rod-like members. Without such motivation and absent improper hindsight reconstruction,<sup>16</sup> a person of ordinary skill in the art would not be motivated to perform the proposed modification, and Claims 1, 13, and 17 are believed to be non-obvious and patentable over the applied prior art.

Nevertheless, even if assuming *in arguendo* that such motivation would exist to make the proposed combination, the resulting combination would not feature all of the limitations recited in Claims 1, 13, and 17. Indeed, one would not have two flat ladders, lower

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<sup>14</sup> In re Gartside, 203 F3d 1305, 53 USPQ2d 1769 (Fed. Cir. 2000) (holding that, consistent with the Administrative Procedure Act at 5 USC 706(e), the CAFC reviews the Board's decisions based on fact findings, such as 35 U.S.C. § 103(a) rejections, using the 'substantial evidence' standard because these decisions are confined to the factual record compiled by the Board.)

<sup>15</sup> In re Dembiczak, 175 F3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("We have noted that evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, although 'the suggestion more often comes from the teachings of the pertinent references.' The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular." ) (emphasis added).

<sup>16</sup> See MPEP 2141, stating, as one of the tenets of patent law applying to 35 USC 103, that "[t]he references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention."

crossbeams, and the assembly of the two ladders with the lower crossbeams to form a three-dimensional structure. In addition, neither cited prior art reference disclose the hollow members as recited in Claims 13 and 17. Only the tube 12 in Ausherman is hollow because it constitutes the main water distribution pipe. As already explained hereinabove, only the lattice bar elements 1 in Cvikl have been specifically disclosed as possibly being round and tubular.

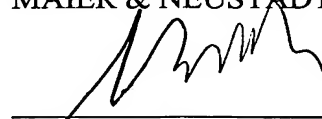
Therefore, Ausherman and Cvikl, individually or in any combination thereof, do not make obvious the invention recited Claims 1, 13, and 17. Furthermore, Claims 2-12, 14-16, and 18-20 are allowable, among other reasons, as depending directly from Claims 1, 13, and 17, which should be allowed as just explained. For the foregoing remarks, Applicants respectfully request that the Examiner withdraw the rejection of Claims 1-20 under 35 U.S.C. § 103(a).

Consequently, in view of the present remarks, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-20 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicants' undersigned representatives at the below listed telephone number.

Respectfully submitted,

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